

Claims

1. Apparatus for remotely powering access equipment in a data network, comprising:
  - a data node adapted for data switching,
  - an access device adapted for data transmission,
  - at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween,
  - a main power source connected to supply power to the data node,
  - a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,
  - sensing means for delivering a low level current from said main power source to the access device over said data signaling pair and sensing a resulting voltage level thereon, and
  - control means responsive to said voltage level and adapted to control power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level.
2. Apparatus according to claim 1, wherein there are at least two data signaling pairs connected between the data node and the access device to supply phantom power from the secondary power source to the access device, and wherein said access device includes a pair of data transformers having center taps connected for locally powering the access device.
3. Apparatus according to claim 1, wherein said preselected condition comprises a varying "sawtooth" voltage level detected by said sensing means which causes said

control means to increase the power supply from the secondary power source to the access device.

4. Apparatus according to claim 1, wherein the data node is an Ethernet switch card incorporating said secondary power supply, said sensing means and said control means.

5. Apparatus according to claim 1, and further including a software program associated with said control means and arranged to poll the access device to identify itself and confirm that it is capable of accepting remote power.

6. Method for remotely powering access equipment in a data network, comprising,

providing a data node adapted for data switching, an access device adapted for data transmission, at least one data signaling pair connected between the data node and the access device and arranged to transmit data therebetween, a main power source connected to supply power to the data node, and a secondary power source arranged to supply power from the data node via said data signaling pair to the access device,

delivering a low level current from said main power source to the access device over said data signaling pair,

sensing a voltage level on the data signaling pair in response to the low level current, and

controlling power supplied by said secondary power source to said access device in response to a preselected condition of said voltage level.

7. Method according to claim 6, including the step of:  
increasing power supplied to the access device in response to a  
“sawtooth” voltage level sensed on the data signaling pair.
8. Method according to claim 6, including the step of polling the access device to  
identify it and confirm that it is capable of accepting remote power.
9. Method according to claim 6, including the step of continuing to sense voltage  
level and to decrease power from the secondary power source if voltage level drops  
on the data signaling pair, indicating removal of the access device.